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Building Code Technical Risk Advisory Group

27 November 2019

MINISTRY OF BUSINESS, INNOVATION & EMPLOYMENT
HĪKINA WHAKATUTUKI

New Zealand Government

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Agenda

Item	Agenda Item	In the hands of	Time
	Welcome Coffee		9:15 - 9:30
1.	Follow-up from the last meeting and feedback on the website	Mike Kerr	9.30 – 10.00
2.	Business Update	Dave Robson	10.00-10.20
3.	BSLRP Update	Matthew McDermott	10.20 – 10.50
4	Use of standards vs internal development of guidance	Jenni Tipler Jennifer Critchley	10:50-11:10
5	Open Forum: Risk Discussion: Risk 1 - Alignment of design standards with building life & changes in loading from climate change	Mike Kerr	11.10-12.00

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Agenda

Item	Agenda Item	In the hands of	Time
	Risk 2 - Climate Change and making our Building Code climate change ready	Mike Kerr	
	Lunch		12.00 – 12.30
5.	Open Forum: Risk Discussion: Risk 3 – Tiny home compliance pathways Risk 4 – Independent Qualified Person's not being able to identify Performance Standards Risk 5 - Review of the Building Code	Mike Kerr	12.30 - 2.00
6.	Open Forum: General issues	Mike Kerr	2.00 - 2.20
7.	Next Steps	Mike Kerr	2.20 - 2.30
8.	Close	Mike Kerr	2.30

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1. Follow-up from the last meeting & website feedback

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2. Business Update

2. Business Update

- November Bi-annual Building Code Update
  - Liquefied prone ground
  - Steel framing
- Climate Change
  - Adaptation
  - Mitigation
- June 2020 Bi-annual update
  - E1 - Rainfall intensity update for surface water
  - E1 - New Acceptable Solution for surface water drainage systems
  - E3 – Overflow updates and web-membrane solutions
  - C – Updates to include provisions for façade testing

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3. Building System Legislative Reform Programme Update

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4. Use of standards vs internal document development

Purpose of this discussion is to:

- Highlight the issues
- Decide if any action is required
- Give direction for future decisions

Issue highlighted by:

- Standards Development Programme
- Consideration of control of risk settings in Standards e.g. NZS 1170.0 building importance levels

What sort of risk settings are currently in Standards?

TABLE 3.3

ANNUAL PROBABILITY OF EXCEEDANCE

Design working life	Importance level	Annual probability of exceedance for ultimate limit states			Annual probability of exceedance for serviceability limit states	
		Wind	Snow	Earthquake	SLS1	SLS2 Importance level 4 only
Construction equipment, e.g., props, scaffolding, braces and similar	2	1/100	1/50	1/100	1/25	
Less than 6 months	1	1/25	1/25	1/25	—	
	2	1/100	1/50	1/100	1/25	
	3	1/250	1/100	1/250	1/25	
	4	1/1000	1/250	1/1000	1/25	
5 years	1	1/25	1/25	1/25	—	—
	2	1/250	1/50	1/250	1/25	—
	3	1/500	1/100	1/500	1/25	—
	4	1/1000	1/250	1/1000	1/25	1/250
25 years	1	1/50	1/25	1/50	—	—
	2	1/250	1/50	1/250	1/25	—
	3	1/500	1/100	1/500	1/25	

TABLE 3.2

IMPORTANCE LEVELS FOR BUILDING TYPES—NEW ZEALAND STRUCTURES

Importance level	Comment	Examples
1	Structures presenting a low degree of hazard to life and other property	Structures with a total floor area of <30 m^2 Farm buildings, isolated structures, towers in rural situations Fences, masts, walls, in-ground swimming pools
2	Normal structures and structures not in other importance levels	Buildings not included in Importance Levels 1, 3 or 4 Single family dwellings Car parking buildings
3	Structures that as a whole may contain people in crowds or contents of high value to the community or pose risks to people in crowds	Buildings and facilities as follows: (a) Where more than 300 people can congregate in one area (b) Day care facilities with a capacity greater than 150 (c) Primary school or secondary school facilities with a capacity greater than 250

What are the options?

	NZ Standard	MBIE Guidance	MBIE Developed AS/VM
Process	• Anyone can commission • Voluntary Industry committee • ISO compliant development process • 1+ years to develop	• MBIE commissions • Paid experts + MBIE resources • Internal MBIE QA processes only • Weeks/months to develop	• MBIE commissions • Paid experts + MBIE resources • Internal MBIE QA processes only • Months/years to develop
Content	• Technical e.g. applied research and data	• Policy e.g. risk setting, safety, performance	• Combine policy and technical issues.
Ownership	• Paid for by Industry • Decisions by consensus of Industry Committee	• Paid for by MBIE • Decisions by MBIE	• Paid for by MBIE • Decisions by MBIE

What are the options?

Standards NZ Options…

- Technical Specification
- Handbook
- Publicly available specification
- Technical report

→ *Drafting not via committee*

→ *Don't require full consensus*

→ *Industry led*

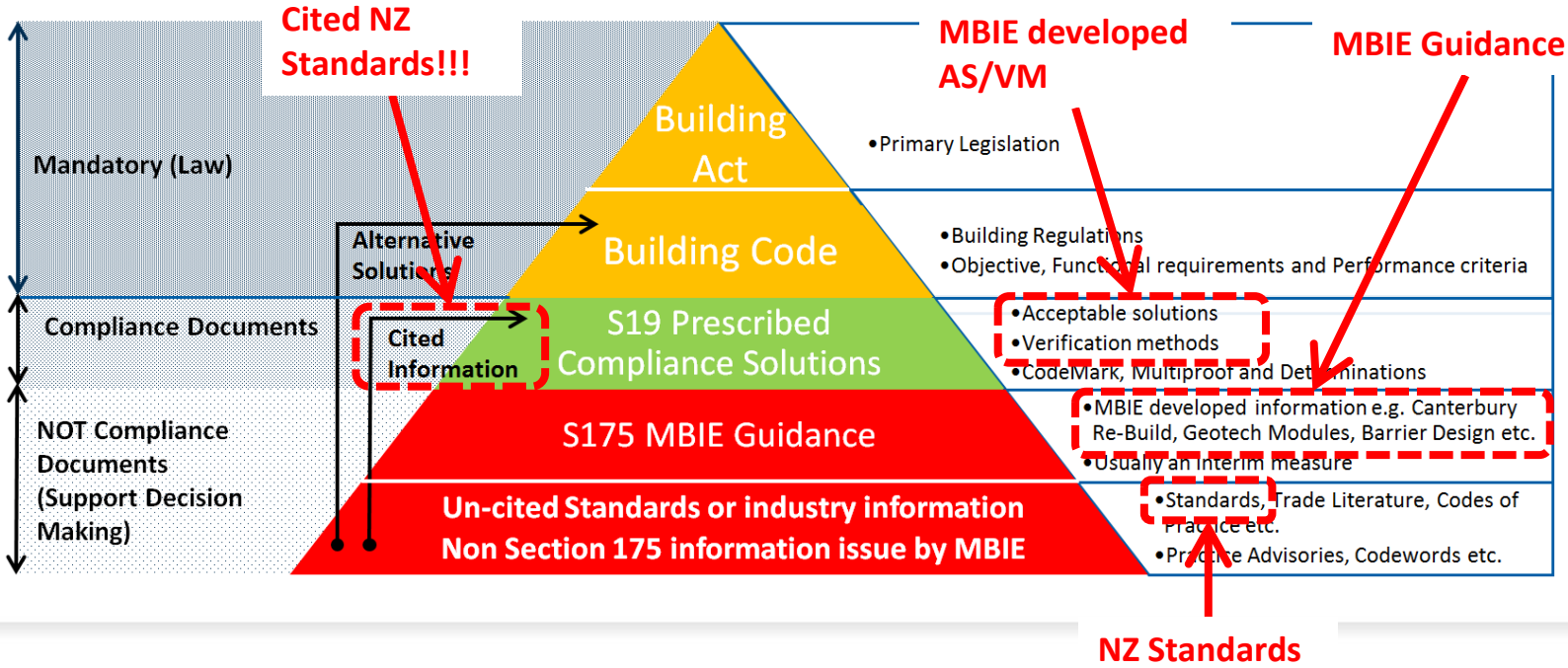
→ *Faster turnaround*

→ *Less robust/independent than Standard*

Other document options…

- External documents e.g. BRANZ reports, overseas Standards, Codes of Practice, ISO Standards

How do the options relate to compliance?

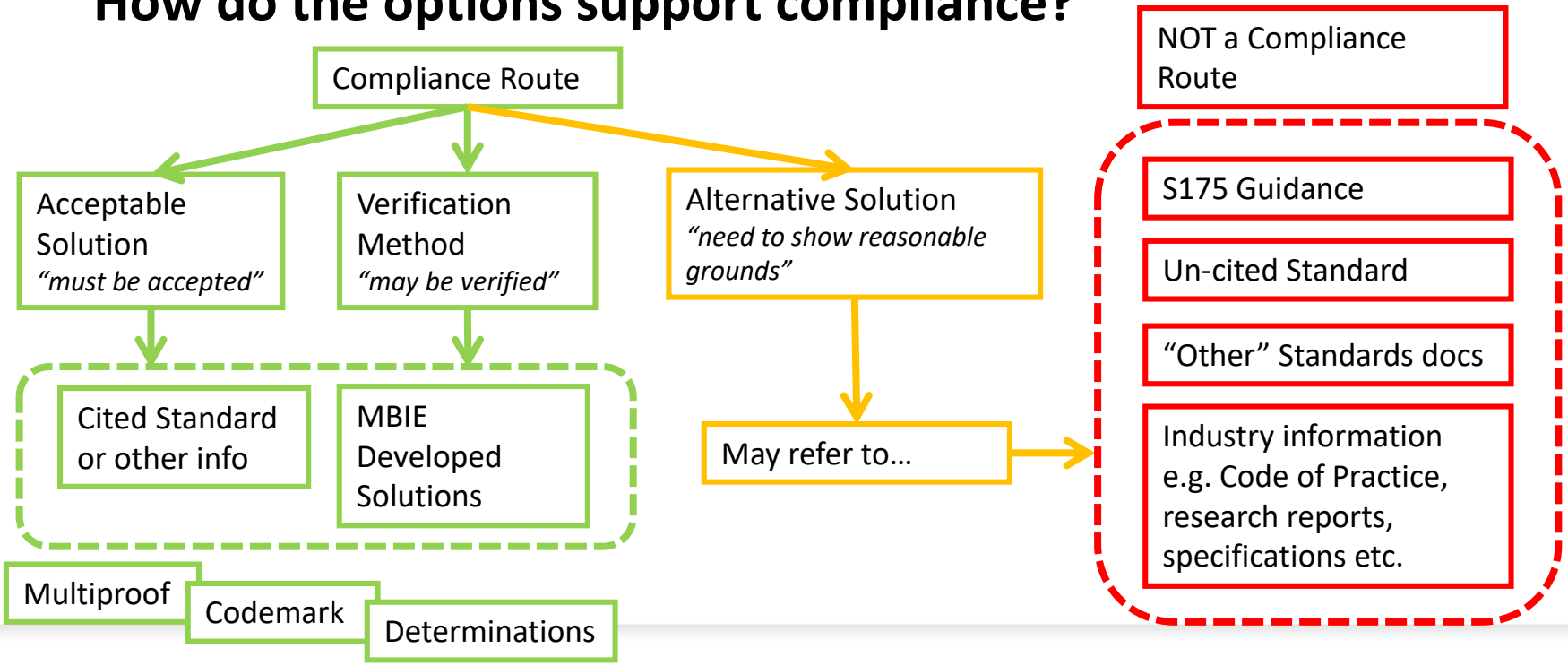


How do the options relate to compliance?

Acceptable Solution means a solution that must be accepted as complying with the *Building Code*.

Verification Method means a method by which compliance with the *Building Code* may be verified.

How do the options support compliance?



What documents are cited by MBIE?

Building Research Association of New Zealand

BRANZ Bulletin 330: 1995 Thin flooring materials – 2 Preparation and laying. Appendix 1

SCION

Measurement of moisture content of wood

Cement & Concrete Association of New Zealand

CCANZ – CP01: 2014 Code of Practice for weathertight concrete and concrete masonry construction, incorporating errata 1, January 2015

Other Organisations

Federal Specification Standard TT-S-00230C	Elastomeric type, cold applied single component for caulking, sealing, and glazing in buildings, building areas (plazas, decks, pavements), and other structures
EIMA 101.91: 1992	EIFS Industry Members Association. Standard Guide for resin of resin coated glass fiber mesh in exterior insulation and finish systems (EIFS), Class PB.
ICBO Evaluation Services Inc	AC148 Acceptance criteria for flashing materials
ISO 9223: 1992	Corrosion of metals and alloys; corrosivity of atmospheres; classification

Incorporation of material by reference

405 Incorporation of material by reference into certain instruments, solutions, and methods

(1) The following material may be incorporated by reference into any instrument:

(a) standards, requirements, or recommended practices of national or international organisations:

(b) any other written material that, in the opinion of the Minister or, as appropriate, the chief executive, is too large or is impractical to include in, or print as part of, the instrument concerned.

What does the Act say about Guidance?

175 Chief executive may publish guidance information

(1) The chief executive may publish information for the guidance of—

(a) any of the following persons to assist them in complying with this Act:

(i) territorial authorities:

(ii) building consent authorities:

(iii) owners:

(iv) persons who carry out building work; and

(b) any of the following persons to assist them in the performance of their functions and duties, and in the exercise of their powers (if any), in relation to dams:

(i) regional authorities:

(ii) owners of dams:

(iii) licensed building practitioners; and

(c) owners of buildings and members of the public in relation to the application of subpart 6A of Part 2.

(2) Any information published by the chief executive under this section—

(a) is only a guide; and

(b) if used, does not relieve any person of the obligation to consider any matter to which that information relates according to the circumstances of the particular case.

Section 175(1)(b)(iii): amended, on 1 July 2017, by section 28(1) of the Building (Earthquake-prone Buildings) Amendment Act 2016 (2016 No 22).

Section 175(1)(c): inserted, on 1 July 2017, by section 28(2) of the Building (Earthquake-prone Buildings) Amendment Act 2016 (2016 No 22).

What are the issues to consider?

- MBIE does not currently have a formal policy on:
    - The process to be followed when drafting AS/VM's
    - Quality Assurance of information to be cited

- What are your key concerns with regard to;
    - the process for preparing AS/VM's?
    - the decision to cite documents?

- Will industry be willing to relinquish some control over compliance solutions in return for a faster process and more certainty?

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5. Open Forum: Risk Submissions

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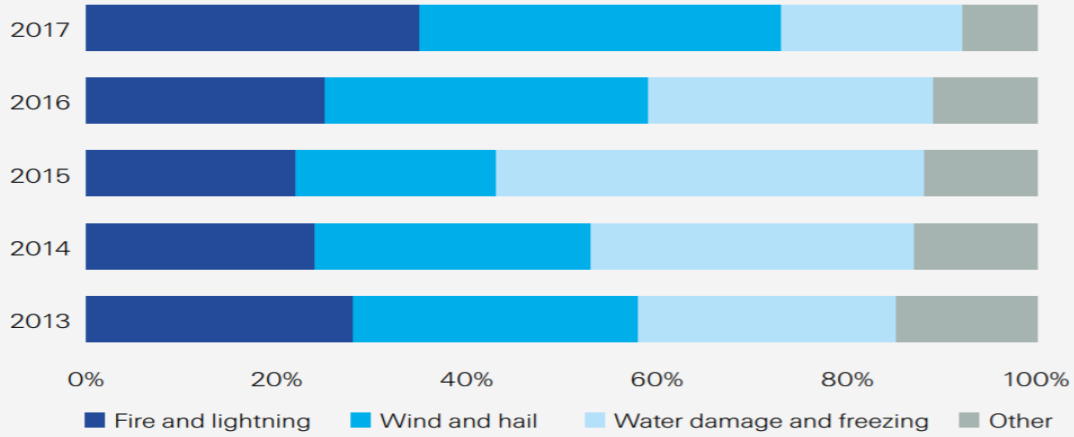
Risk 1 - Alignment of design standards with building life & changes in loading from climate change

Proposed by Stephen Jenkins. Association for Consulting and Engineering professionals NZ

Can we afford the economic loss when climate change makes parts of our infrastructure and property uninsurable?

Figure 10
Sources of homeowner insurance losses, US



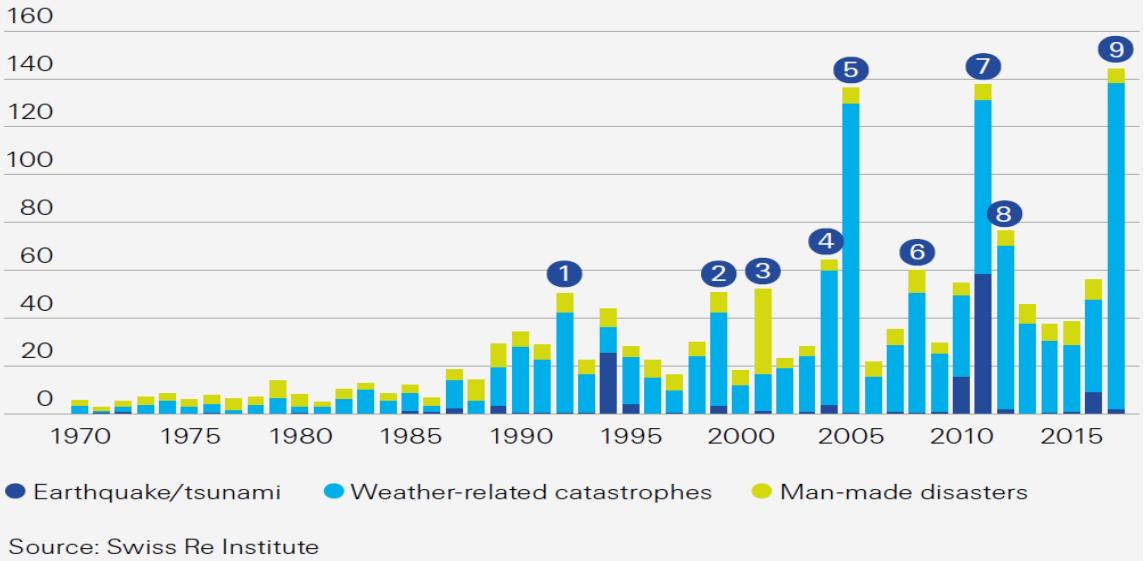
Source: Insurance Information Institute

Cause of loss

Number of weather related losses. Many of these losses could be engineered out

Figure 3
Insured catastrophe losses 1970–2017 in USD billion, at 2017 prices

1. 1992: Hurricane Andrew
2. 1999: Winter Storm Lothar
3. 2001: World Trade Center
4. 2004: Hurricanes Ivan, Charley, Frances
5. 2005: Hurricanes Katrina, Rita, Wilma
6. 2008: Hurricanes Ike, Gustav
7. 2011: Japan, NZ earthquakes, Thailand flood
8. 2012: Hurricane Sandy
9. 2017: Hurricane Harvey, Irma, Maria

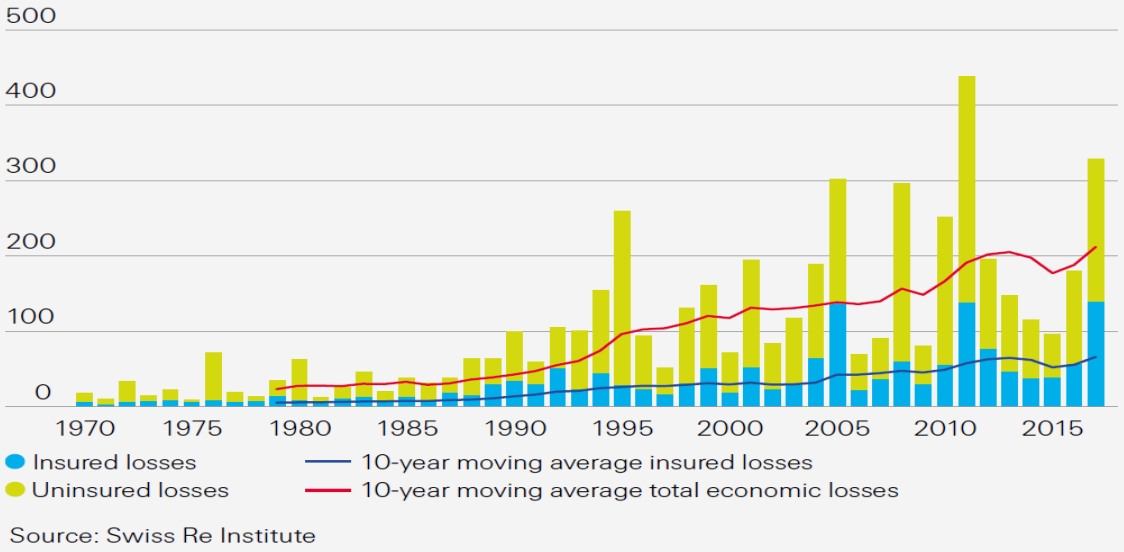


Source: Swiss Re Institute

Can we afford to absorb these losses forever?

Figure 4
Insured vs uninsured losses, 1970 – 2017, in USD billion at 2017 prices

Economic losses
=
insured +
uninsured losses



Source: Swiss Re Institute

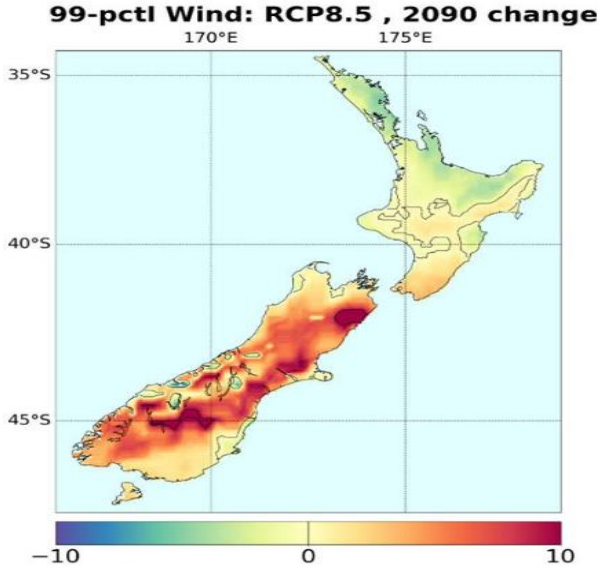
Significant losses in our region

Table 3
Number of events, victims economic and insured losses by region, 2017

Region	Number	Victims	in %	Insured losses in USD bn	Insured losses in %	Economic losses in USD bn	Economic losses in %
North America	66	466	4.1%	119.1	82.5%	244.2	72.4%
Latin America & Caribbean	19	1375	12.1%	5.1	3.5%	31.6	9.4%
Europe	46	536	4.7%	12.0	8.3%	23.7	7.0%
Africa	40	2919	25.6%	0.8	0.5%	2.9	0.9%
Asia	112	5546	48.6%	5.0	3.5%	31.2	9.2%
Oceania/Australia	5	100	0.9%	2.1	1.4%	3.3	1.0%
Seas / Space	13	462	4.1%	0.3	0.2%	0.3	0.1%
World	301	11404	100.0%	144	100.0%	337	100.0%

Note: some percentages may not add up to 100 due to rounding.
Source: Swiss Re Institute

Better engineering standards are a positive adaptive measure.



> "Without adaptive measures, projected increases in extremes and uncertainties in these projections will lead to increased insurance premiums, exclusions and non-coverage in some locations, which will reshape the distribution of vulnerability, e.g., through unaffordability or unavailability of cover in areas at highest risk."

Figure 7: Projected changes in extreme daily wind speed (in %) by the end of the 21st century, for the ensemble-mean of 6 climate models under the highest CO_2 concentration scenario RCP8.5 from the IPCC 5th Assessment. [NIWA]

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Risk 2: Climate Change and making our Building Code climate change ready

Proposed by MBIE

Building Code settings that adapt to Climate Change

Discussion catalyst

BSP sees opportunities to reduce carbon emissions within the construction sector but acknowledge there will be cost implications to building owners now do it, with mixed short and long term benefits.

BSP are interested to know what are some of the risks and opportunities of taking a climate change ready approach to setting Building Code performance.

Areas of where the Building Code could be made Climate Change ready
Building envelope insulation relating to max energy use to condition spaces
Internal environment performance metrics, such as min and max temperatures
Increasing the scope of buildings required to be energy efficient
Introducing Passive building design solutions
Tools for calculating Heating and Ventilation and Cooling
Lighting efficiency targets
Hot water efficiency targets
Building material embodied carbon targets
Introducing construction limits for greenhouse gas emission
Adopting whole of life building energy and resilience indexes
Construction and demolition waste targets

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Risk 3: Tiny home compliance pathways

Proposed by BCA

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Risk 4: Independent Qualified Person's not being able to identify Performance Standards.
Specified Systems Performance Standards - Acceptable Solutions

Proposed by BCA

IANZ ADVICE October 2019

- Compliance Schedule Handbook is not current
- Cannot advise why still available yet not to be used
- Acceptable Solutions not to be cited as Performance Standards
- Example given of F8 Performance requirements used as PS's
- All objections answered by deference to MBIE
- "IANZ issue the directive of MBIE" – when asked why no update
- "GNC's are issued throughout NZ for non compliance"
- "Western Bays issue perfect CS's and others should follow"
- There was absolutely no negotiation on this advice

BCA's gauged for response

Is this a consistent message?

- No it is not a consistent message
- Western Bays CS's cited Acceptable Solutions
- Feedback varied and confused
- No one spoken to was aware that the CSH was no longer guidance
- Some stated the Technical Expert was simply wrong
- Some received GNC's for AS's cited as PS's but variations

What are the risks?

- Applicants nominate means of compliance. BCA's verify
- Rejection of applications with no reasonable basis or explanation
- Disseminating confused message to stakeholders
- Incorrect PS's cited as a result of advice by TE's
- There is no Performance standard for F8 other than AS/1
- Contradicts section 103 of the Act

'….the inspection, maintenance, and reporting procedures of the compliance schedule may be identified-

(b) by reference to –(i) a prescribed acceptable solution ……verification method…or'

(i) an acceptable solution or verification method issued under …'

Acceptable Solution F8/AS1

This Acceptable Solution describes one way of meeting the requirements of NZBC Clause F8 for the design and provision of signage in and around buildings. Included are safety signs, exit signs, fire related safety feature signs, hazard signs, and signs for access and facilities for people with disabilities.

Contradicting Advice

I can confirm the following guidance I gave you in our conversation this morning:

Just quoting the relevant Acceptable Solution will suffice as a performance standard, however it is necessary to state the version/amendment date and the sections of the document that apply. Some councils have actually inserted the relevant sections from the various Acceptable Solutions into the compliance schedule, so that in years to come there is no need for the reader to refer to any other document.

Before a BCA issues a CCC, it must satisfy itself on reasonable grounds that the building work (including specified systems) has been completed is in accordance with the building consent. This may include a compliance schedule/BWoF officer accompanying the inspector at the final inspection or the supply of a written professional opinion or PS4 from the appropriate party.

- **Gary Higham**
- SENIOR ADVISOR, BUILDING SYSTEM ASSURANCE TEAM

Is there a bigger issue?

- How does MBIE assure itself:
  - That IANZ advice is correct and consistent
  - That Technical experts competency is current
  - Are regular competency assessments required of TE's?
  - Is there a QA system for above that BCA's can have confidence in?
- IANZ apply interpretation of legislation that changes BCA behaviour
- BCA's behaviour is then applied across the entire industry
- Regulation guidance checklists help with consistency
- Regulation checklists are not an IANZ QA system
- Should a formal online feedback be available to help?

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Risk 5: Review of the Building Code

Proposed by BOINZ

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6. Open Forum: General Issues

7. Next Steps

- Next meeting will be on Friday 21st February, 2020 at MBIE.
- 2020 meetings will run from 9.30 – 3.30
- Questions

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Thank You